Remarks

Claims 1-20 and 24 are pending.

Rejections under 35 U.S.C. § 103(a)

Rejection of Claims 1-2 and 10-18

The rejection of Claims 1-2 and 10-18 under 35 U.S.C. 103(a) as being unpatentable over Selvam *et al.* in view of Cantin *et al.* is respectfully traversed. There is no teaching or suggestion to combine or modify the references to produce the invention of amended Claim 1 or of any of the claims depending from amended Claim 1.

Selvam *et al.* teach immunoliposomes conjugated with a palmitoylated CD4 monoclonal antibody and containing a Rev antisense. Selvam teaches that these immunoliposomes may lower viral infection in HIV-infected CD4-bearing cells. Selvam *et al.* does not teach or suggest using any other ligands such as the ligand *able to bind to HLA-DR* as claimed in Claim 1, even less so of an HLA-DR ligand *coupled to* a lipid comprising vesicle.

The present application clearly specifies that some cells carry HLA-DR while others do not (see specification at page 14, lines 4-14 and page 22, lines 16-19). The present application also clearly specifies that some infectious agents carry HLA-DR while others do not (see page 22, lines 16-26) depending, for example, on the cell type from which they originate.

The Applicant also wishes to point out that the population of cells having HLA-DR at their surface are not necessarily the same population as those having CD4 at their surface. For example, a cell may be CD4 negative and HLA-DR positive, and vice-versa. Similarly, infectious agents that have HLA-DR at their surface are not necessarily the same infectious agents as those having CD4 at their surface. Selvam does not teach cells or infectious agents carrying HLA-DR. The cell population targeted by Selvam et al. is not identical to the cell population targeted by the present invention. Additionally, there is no teaching or suggestion in Selvam et al. of targeting an infectious agent.

Cantin *et al.* discuss ways to increase HIV infection using HLA-DR, which in fact points away from inhibiting an infectious agent. The Applicant respectfully submits that Cantin does not teach or suggest formulations comprising a lipid-comprising vesicle, and even less a lipid-

comprising vesicle *coupled with a HLA-DR ligand*. There is no teaching or suggestion in Cantin et al. of targeting an infectious agent.

Therefore, neither Selvam nor Cantin, taken alone or in combination, teach or suggest a formulation comprising a ligand capable of binding to a HLA-DR coupled to a lipid-comprising vesicle.

Furthermore, there is no teaching or suggestion in either reference, taken alone or in combination, of a formulation comprising a ligand capable of binding to a protein present at the surface of an infectious agent and at the membrane surface of a cell.

The Examiner cites MPEP 2144.07 to assert that "the motivation to combine can arise from the expectation that the prior art elements will perform their expected functions to achieve their expected results when combined for their common known purpose". The Examiner further cites *In Re Sernaker*, 17 USPQ 1, 5-6 (Fed. Circ.1983) to assert that "the strongest rationale for combining references is a recognition, expressly or impliedly in the prior art or drawn from a convincing line of reasoning based on established scientific principles or legal precedent, that some advantage or expected beneficial result would have been produced from their combination".

The Examiner indicated that the teachings of Selvam pertaining to the advantages of targeting HIV infected cells using anti-CD4 coupled to liposomes and the teachings of Cantin indicating HLA-DR is a natural ligand for CD4 and HIV infected cells has an increased expression of HLA-DR would have led one of ordinary skill in the art at the time the invention was made to combine the references to solve a well known problem of targeting HIV infected cells in the art.

The Applicant respectfully submits that the invention does not simply solve the problem of targeting infected cells. Formulations of the present invention also targets HLA-DR positive non-infected cells (see for example page 14, lines 4-14 of WO/00/66173) and infectious agents (carrying HLA-DR) themselves.

The Applicant respectfully submits that he has come to the unexpected results of obtaining a formulation which is able to bind to a HLA-DR protein which is present at the surface of an infectious agent and at the membrane surface of a cell.

The above-mentioned advantages are not suggested nor disclosed in either references taken alone or in combination.

Furthermore, simply replacing the anti-CD4 antibody of Selvam with the HLA-DR ligand disclosed in Cantin (i.e., CD4) would not have given the advantage or expected beneficial result of the present invention.

There is no teaching, guidance or direction in Selvam and/or Cantin, either taken alone or in combination, of methods that may be used in the identification of a formulation which is capable of binding to a HLA-DR protein present at the surface of an infectious agent and at the membrane surface of a cell.

In light of the foregoing arguments, withdrawal of the rejection of Claims 1-2 and 10-18 is respectfully requested.

Rejection of Claims 3-9 and 19

The rejection of Claims 3-9 and 19 under 35 U.S.C. 103(a) as being unpatentable over Selvam *et al.* in view of Cantin *et al.* as applied to Claims 1-2 and 10-18, and further in view of U.S. pat. No. 5,773,027 ('027) is respectfully traversed. There is no teaching or suggestion to combine or modify the references to produce the invention of Claims 3-9 or 19.

The teachings of Selvam and Cantin have been discussed *supra*. The '027 patent does not discuss a HLA-DR ligand, and even less *a HLA-DR ligand coupled to* a lipid-comprising vesicle as claimed in any one of Claims 3-9 and/or containing drugs as claimed in Claim 19. In addition, there is no teaching or suggestions in the '027 reference taken alone or in combination with Selvam and/or Cantin, of a formulation comprising a ligand capable of binding to a protein present at the surface of an infectious agent and at the membrane surface of a cell.

The Examiner referred to the teachings of Cantin as identifying a HLA-DR ligand and indicated that it would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the liposome that coupled to a ligand binding to a HLA-DR protein as taught by Selvam and Cantin for the liposome with encapsulated drug as taught by the '027 reference.

As discussed above, neither Selvam nor Cantin taken alone or in combination teaches a formulation comprising a ligand capable of binding to a HLA-DR protein present at the surface

of an infectious agent and at the membrane surface of a cell. Additionally, there is no teaching, guidance or direction in Selvam and/or Cantin either taken alone or in combination of methods that may be used in the identification of a formulation which is capable of binding to a HLA-DR protein present at the surface of an infectious agent and at the membrane surface of a cell.

The teachings of the '027 reference does not cure the deficiencies of Selvam and/or Cantin.

In light of the foregoing arguments, withdrawal of the rejection of Claims 3-9 and 19 is respectfully requested.

Rejection of claims 1, 11 and 20

The rejection of claims 1, 11 and 20 under 35 U.S.C. 103(a) as being unpatentable over Selvam *et al.* in view of Cantin *et al.* and Harlow *et al.* is respectfully traversed, because, there is no teaching or suggestion to combine or modify the references to produce the invention of Claims 1, 11 or 20.

The teachings of Selvam and Cantin have been discussed supra. The Harlow *et al.* reference does not discuss a HLA-DR ligand, and even less *a HLA-DR ligand coupled to* a lipid-comprising vesicle. In addition, there is no teaching or suggestions in the Harlow *et al.* reference, taken alone or in combination with Selvam and/or Cantin, of a formulation comprising a ligand capable of binding to a protein present at the surface of an infectious agent and at the membrane surface of a cell.

The Examiner indicated that it would have been obvious to one of ordinary skill in the art at the time the invention was made to make a Fab fragment as taught by Harlow et al. using the anti-HLA-DR as taught by Cantin et al., and then substituting the anti-CD4 in the anti-CD4 coupled liposome as taught by Selvam for a formulation which comprises a ligand capable of binding to a HLA-DR protein such as anti-HLA-DR fragment being coupled to a lipid-comprising vesicle as taught by Selvam et al., Cantin et al. and Harlow et al.

Using the teachings of the prior art, one of ordinary skill in the art would not have had reasonable expectation of successfully producing the claimed invention. As discussed above, neither Selvam nor Cantin taken alone or in combination teaches a formulation comprising a ligand capable of binding to a protein present at the surface of an infectious agent and at the

membrane surface of a cell. Additionally, there is no teaching, guidance or direction in Selvam and/or Cantin et al. either taken alone or in combination of methods that may be used in the identification of a formulation which is capable of binding to a HLA-DR protein present at the surface of an infectious agent and at the membrane surface of a cell. More particularly, there is no indication in Selvam and/or Cantin et al. either taken alone or in combination, of how to identify a formulation which binds to an infectious agent.

The teaching of the Harlow reference does not cure the deficiencies of Selvam and/or Cantin.

In light of the foregoing arguments, withdrawal of the rejection of Claims 1, 11 and 20 is respectfully requested.

Based on the above remarks, the Examiner is respectfully requested to reconsider and withdraw the rejections of the claims. The Applicant respectfully submits that new claim 24 is also patentably distinct from the teachings of the cited references.

It is submitted that the present claims are in condition for allowance, and notification to that effect is respectfully requested.

Extension of Term. The proceedings herein are for a patent application and the provisions of 37 CFR § 1.136 apply. Applicant believes that a two (2) month extension of term is required, and hereby requests such extension and authorizes the extension fee to be charged to Account No. 23-2053. If any additional extension and/or fee are required, please consider this a petition therefore and charge the required fee(s) to Account No. 23-2053.

It is submitted that the present claims are in condition for allowance, and notification to that effect is respectfully requested.

Respectfully submitted,

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